Before the
Federal Communications Commission
Washington, D. C. 20554

In the matter of	)	
	)	
Amendment of Part 97 of the	)	RM-11305
Commission's Rules Governing	)	RM-11306
the Amateur Radio Service	)	

Comments of Jan A. Tarsala

1. I have reviewed the petitions for rulemaking submitted by the Communications Think Tank (RM-11305, hereafter referred to as the Think Tank petition) and by ARRL, the National Association for Amateur Radio (RM-11306, hereafter referred to as the ARRL petition). Both contain inconsistencies and unsupported assertions which I will illuminate using their own words. Although these two petitions may appear irreconcilable, I am persuaded that the intent of each petitioner can be achieved by adopting a different way – a *third* way – to segment the U. S. amateur radio service bands.

2. I am an Amateur Extra class licensee, holding the station callsign WB6VRN, and am the trustee for our family club station, K6TY. I have a General Radiotelephone Operator License with Radar Endorsement and work for a federally-funded research and development center as an RF, Microwave, and Antenna

Engineer. I have filed Comments and/or Reply Comments to the FCC before regarding (in collaboration with Courtney B. Duncan, N5BF) WT 98-143 (license restructuring) and ET 04-37 (BPL). I am an Official Observer in the Amateur Auxiliary to the FCC. This and my 39 years as a radio amateur qualify me well to comment on the Think Tank and ARRL petitions. I write solely as an individual and for myself.

3. Both petitions for rulemaking assert a need for regulatory change to accommodate emerging -- particularly digital -- communication technologies by radio amateurs in the United States. The Think Tank petitions states:

> Digital experimentation and development will be encouraged in a progressive environment which allows exchanges of data, image and voice on any vacant frequency, defined as one elected to minimize the chance for unintentional interference to other operators.

The ARRL says:

> The Amateur Radio Service rules limit emission types that can be deployed in the Amateur Service. The reason for this is largely historical, rather than practical. In this Petition, ARRL suggests a shift in regulatory philosophy, which is the Amateur Radio version of a change from a "command and control" model for Amateur Radio regulation to one based on facilitating research, development, experimentation and refinement of Amateur Radio digital communications techniques and advanced technologies. In order to encourage the implementation of new technologies in the Amateur Radio Service, the rules must be modified to more flexibly accommodate use of such technologies.
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> *****
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> Just as the Commission properly intended in the Docket 98-143 proceeding to update the licensing process to facilitate the implementation and use of new digital technology, this Petition seeks to facilitate and encourage the development, refinement and use of new digital technologies without the regulatory remnants developed at a time when the principal emissions used in the Amateur Radio Service were Morse telegraphy and single- or double-sideband amplitude-modulated telephony.

So there is agreement that the transition to digital transmission within the amateur radio service is driving the need to reconsider how the U. S. amateur radio service bands are segregated.

4. Having identified this one area of agreement, these two petitions for rulemaking then immediately diverge in their recommended regulatory response. The Think Tank petition proposes there be no high frequency U. S. amateur radio service band segmentation based on emission type or information source (while at the same time being conspicuously silent on band structures for the VHF and shorter wavelength bands). The ARRL focuses on amateur radio service band segmentation based exclusively on emission bandwidth. The Think Tank argues FCC regulations should mirror those of foreign nations who do not segment their amateur radio service bands by regulation, instead relying on the community of amateur radio operators to reach voluntary accommodations:

> Communications authorities in many countries rely on amateur service licensees to achieve better spectral efficiency through voluntary band plans.
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> Among those countries, our Canadian neighbors provide an excellent example of voluntary band plan success. Canadian phone operation coexists quite well with US. operators in the current US. CW/Data sub bands.

Directly undermining their argument, however, the Think Tank acknowledges incompatibility between certain modes even now in use by American radio amateurs:

> Automatic or semi automatic data operation not copied by the human ear becomes of particular concern under our proposal, since the activity would be unencumbered by subband. This group of users would have a specific challenge to maintain the good judgment pre-requisite by making certain their telemetry-polling systems recognize the presence

> of other modes and activities and avoiding interference to other communications.

In a similar way, the ARRL weakens the foundation of its proposal by asserting that the foreign approach of not having amateur radio service band segmentation can never be made to work in America, but the ARRL *offers no proof*:

> Many countries do not segment their amateur bands by bandwidth or mode in their domestic regulations. Rather, band planning is done either on a regional basis through the International Amateur Radio Union band plans, or through voluntary band plans developed by the national Amateur Radio society in that country. In those cases, the rules simply require that Amateur signals be kept within the allocated band. Because there is a strong tradition in the United States of restricting subbands by rule rather than purely through voluntary band plans, complete elimination of regulatory band segments and complete reliance on informal band planning does not appear to be a suitable option in the United States.

In making this out-of-hand dismissal, the ARRL ignores the long-standing success of voluntary band segmentation by radio amateurs on the 160 m MF amateur radio service band. As correctly stated by the Think Tank:

> Another successful example of voluntary coordination involving US. amateurs is the way modes and activities have sorted themselves out on 160 meters, on a basis that has been overwhelmingly cooperative with a long-term record of minimal complaints.

5. Both petitions for rulemaking recognize compatibility amongst communication modes as essential for harmonious band occupancy. In Appendix B, the Think Tank petition quotes from an online discussion forum at http://www.qrz.com:

> Posted: May 01 2005,18:36, K3UD, George,
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> The way things are now, if someone plops down very close to the frequency you are using and causes interference, you can slide up or down frequency and explain the situation. More often than not, the

> interfering station will move off. However, [h]ow is it possible for one to negotiate with a digital robot wandering the band?

This posting succinctly encapsulates that **the critical ability of radio amateurs to intercommunicate, to flexibly change operating frequency, and thereby to contemporaneously resolve occupancy conflicts is an essential trait of the amateur radio service.** This fundamental truth, then, provides the direction for a balanced compromise – a *third* way -- between the divergent approaches of these two petitions. The Think Tank proposal is fatally flawed because it does not address the **incompatibility between automated and non-automated station operations.** The ARRL proposal is likewise flawed because **bandwidth is an irrelevant and improper discriminant** and would collocate modes where the human ear and brain are principally used to recover the information content (e.g. analog voice) alongside those in which a computer first recovers the information content (e.g. digital voice).

6. Here is what I myself said via e-mail to my ARRL Division Director, Dick Norton, N6AA, just prior to the ARRL Board of Directors meeting which approved proceeding to submit their petition for rulemaking:

> Dick,
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> I've studied the League's regulation-by-bandwidth proposal at great length, both in its original text and with its more recent revisions. I even drafted detailed, paragraph-by-paragraph comments on the proposed Petition for Rulemaking, but I never sent them because, through all the intervening months, I was inwardly disquieted. Something not articulated was amiss, and now, finally, I can bring my concerns into focus. I hope this reaches you in time to aid the Board of Director's deliberations. I will be brief.
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> After all these months of rumination, I realized that I was blinded by the details. We had all missed the big questions that need definition. By first concretely stating these questions and articulating their

answers, only then can we craft regulations that have a true foundation. So much of what the League has heretofore written on regulation-by-bandwidth appears to be a solution in search of a problem or an answer to the problems of today without foresight for tomorrow. Therefore, let me frame the discussion by asking:

What do we want amateur radio to look like in twenty-five years? I say "twenty-five" because this is about the time span with which the Commission revisits these issues. (I have been a ham long enough to know.) Unless we can articulate this vision, whatever we propose today will be outdated as soon as the next dawn. Furthermore, our American vision must harmonize with those in the rest of the world, for our signals know no borders.

How do we transition from the amateur radio of today to the amateur radio we envision in twenty-five years? Are all the stakeholders accommodated? Can we build a consensus with their support with which to approach the Commission?

Let me provide my own answers to these questions.

In twenty-five years, we want to still appreciate the history of our radio art and to accommodate legacy modes and activities. Everything we do today should still find a place for its expression tomorrow. That means celebration of manual telegraphy and AM DSB will still have a place within the amateur radio service. However, considering the HF bands, our communications will have made the transition to digital modulation, whether it is for voice, keyboard, multimedia, or networked communications.

Our orderly metamorphosis requires an appreciation of this truth: signals which are intended to be interpreted by the human ear and brain are fundamentally incompatible with those which are intended to be demodulated and displayed by a machine. Moreover, considering the latter, there is an additional incompatibility between stations that operate under manual control and those that are automatically controlled. To do nothing to segregate these communication methods will doom our future and lead to unflattering and stunting rancor within the worldwide amateur radio service. Imagine our phone bands with a mix of analog SSB and digital voice, each group unable to intercommunicate with the other, or consider today's situation with manual keyboard communications agitating against automated messaging networks.

> "Regulation by bandwidth" misses the whole point and provides a shortsighted expression of the communication technologies of today without a framework in which heretofore unknown techniques can find a home. We should instead organize our [HF] bands to cluster modes which are most likely to be compatible with one another and able to intercommunicate: "analog" (e.g. CW telegraphy, SSB, AM DSB); "digital" (e.g. keyboard, multimedia, digital voice); and "automated" (e.g. PACTOR, APRS, beacons). And there we should stop, for to overspecify additional partitions or restrictions in our Federal Regulations denies our abilities as amateur radio operators to find reasonable gentlemen's agreements that will have the resilience to respond to tomorrow's technology infusions.
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> Much more I could say on any of these topics should you so desire, but for now, I wish you and all the other Directors great success with this most challenging and far-reaching of issues.
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> 73,
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> Jan
> WB6VRN
>
> OO, Los Angeles Section
> VE, ARRL VEC

7. The correct solution, then, to promote technical, and especially digital, experimentation within the amateur radio service while minimizing conflicts is one which maximizes opportunities for gentlemanly, contemporaneous resolution of whatever conflicts do arise through intercommuncation. This suggests band segmentation based *firstly* on the **method of information recovery** (by the human ear and brain or by some other electronic/computer/electromechanical means) and *secondly* on whether the station is **automated or attended** by a control operator. More prescriptive regulations are neither needed nor desirable. Emission bandwidth is an irrelevant approach that in no way maximizes the opportunity for intecommunication amongst radio amateurs. Automated stations must be segregated

from all others. Adopting the approach recommended herein can indeed achieve the goal stated by each of the petitioners to promote technical advancement within the amateur radio service and draw upon the proven ability of radio amateurs to resolve conflicts within their own service through band plans reached by consensus and by personal, direct communications.

Respectfully submitted this Sixth Day of February, 2006,

Jan A. Tarsala